



U.S. Department of Energy  
Energy Efficiency and Renewable Energy

# Performance Contracting for Energy Projects: Pros and Cons

Alan Davis





# Agenda

## ✧ **What is Performance Contracting?**

## ✧ **Three Methods:**

1. Traditional Performance Contract
2. Performance Contract Using Operating Funds
3. Unbundled Performance Contract



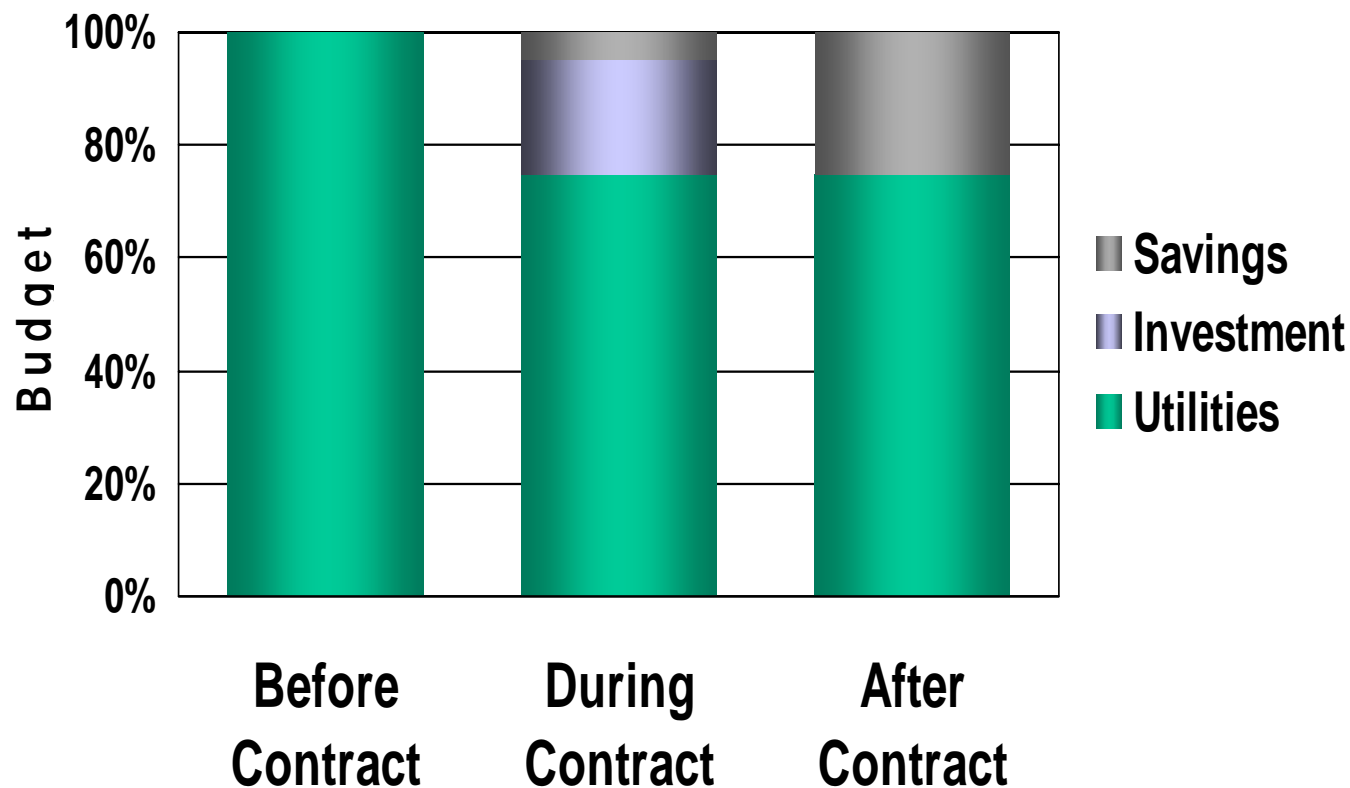


# Energy Savings Performance Contracting

- ✧ A procurement methodology
  - ✧ and project delivery approach
    - ✧ to renovate buildings and improve infrastructure
      - ✧ by leveraging existing operating inefficiencies
        - ✧ to fund the improvements.



# How does ESPC work?





# Energy Savings Performance Contracting

- ✧ A process where a facility owner partners with a qualified services provider.
- ✧ Together they develop a program consisting of financial, technological, and operational solutions that meet specific performance criteria.
- ✧ The financial risks are understood and divided between the facility owner and the services provider.



# The Evolution of the ESPC Industry

- ✧ ESPC industry is approximately 25 years old
- ✧ 17 accredited companies in NAESCO
  - Engineering Firms, Equipment Suppliers, Utilities, and Contractors
- ✧ Supporting organizations
  - Rebuild America, ESC, and NAESCO
- ✧ 42 states have enabling legislation for ESPC
- ✧ Maine Bureau of General Services has qualified five ESCOs to implement energy efficiency improvements in State buildings.



# What Can Performance Contracting Do?

Create high performance buildings

Complete long term solutions by combining low and high ROI projects

Address deferred maintenance issues

Upgrade central plant and distribution infrastructure

Performance guarantees

More predictable and lower operating costs



# Comprehensive Measures

- ❖ Central heating and chilled water plants
- ❖ Cogeneration
- ❖ Steam distribution systems
- ❖ New boilers and chillers
- ❖ Premium efficiency lighting and motors
- ❖ Electrical system upgrades
- ❖ Retro-commissioning of HVAC systems
- ❖ Renewable energy solutions
- ❖ Water conservation
- ❖ Energy management and control systems
- ❖ New roofs and windows
- ❖ Steam traps



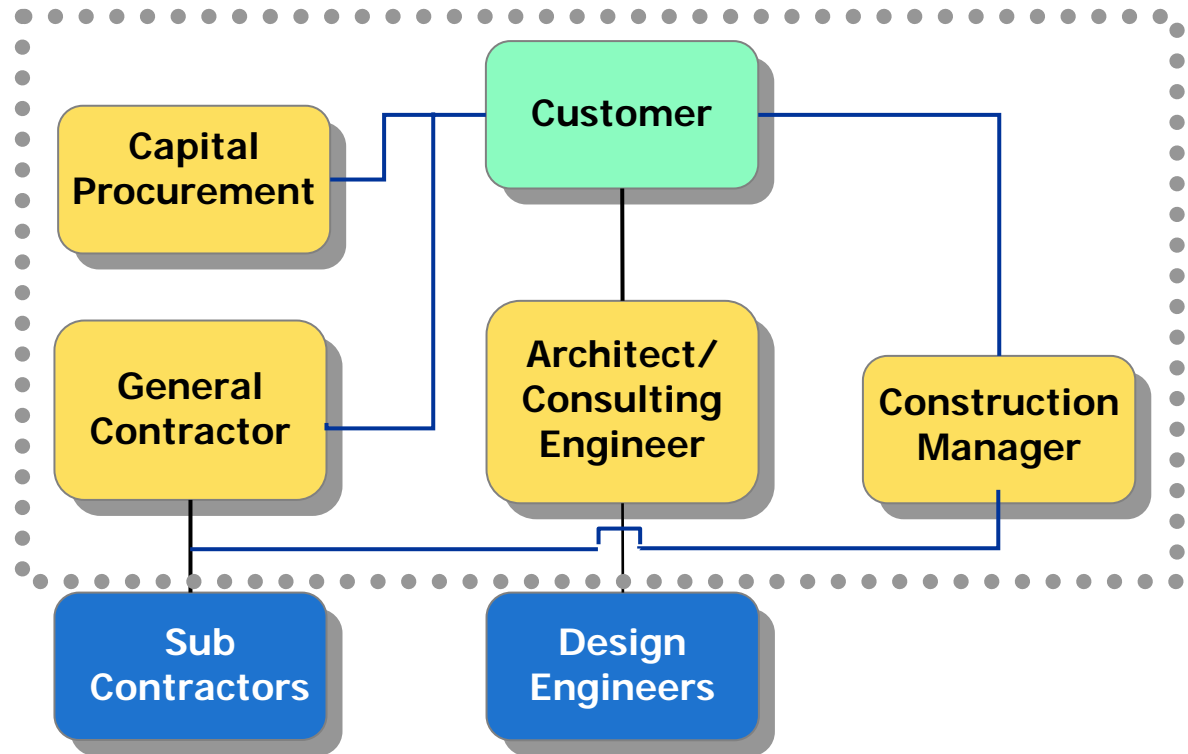
# Three Methods of Performance Contracting

1. Standard Performance Contract
2. Performance Contract Using Operating Funds
3. Unbundled Performance Contract



# Traditional Design–Bid–Build Process

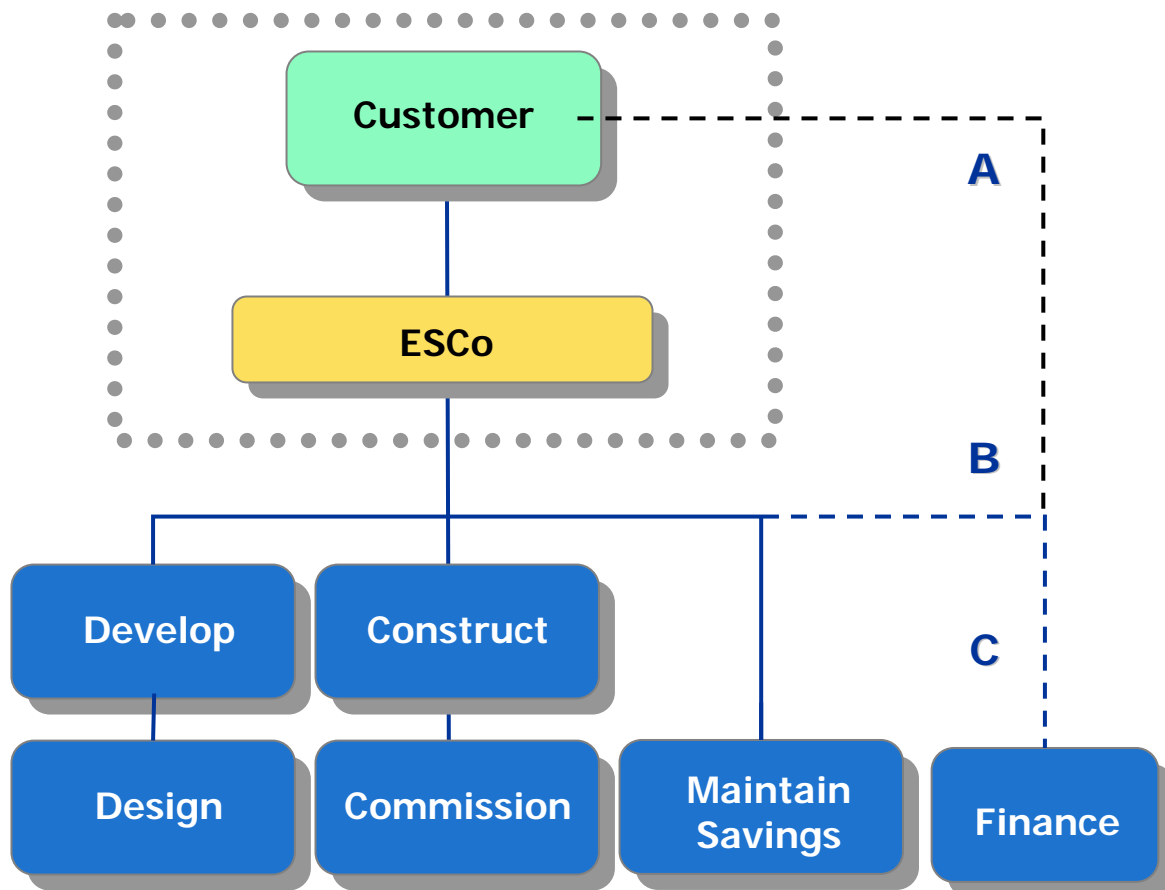
- *Conduct a study*
- *Hire A&E Firm*
- *Establish budget*
- *Request funding*
- *Wait...*
- *Funding approved*
- *Request Bids*
- *Award to GC*
- *Assign Constr. Mgr.*
- *Change orders*
- *Commissioning*
- *Finger pointing*





# Standard Performance Contract

- *Prepare RFP*
- *Gather utility bills*
- *Escort building surveys*
- *Review proposals*
- *Select an ESCo*
- *Review detailed audit*
- *Negotiate contract*
- *Procure financing*
- *Meet with ESCo to monitor construction*
- *Review savings reports*





# Standard Performance Contract

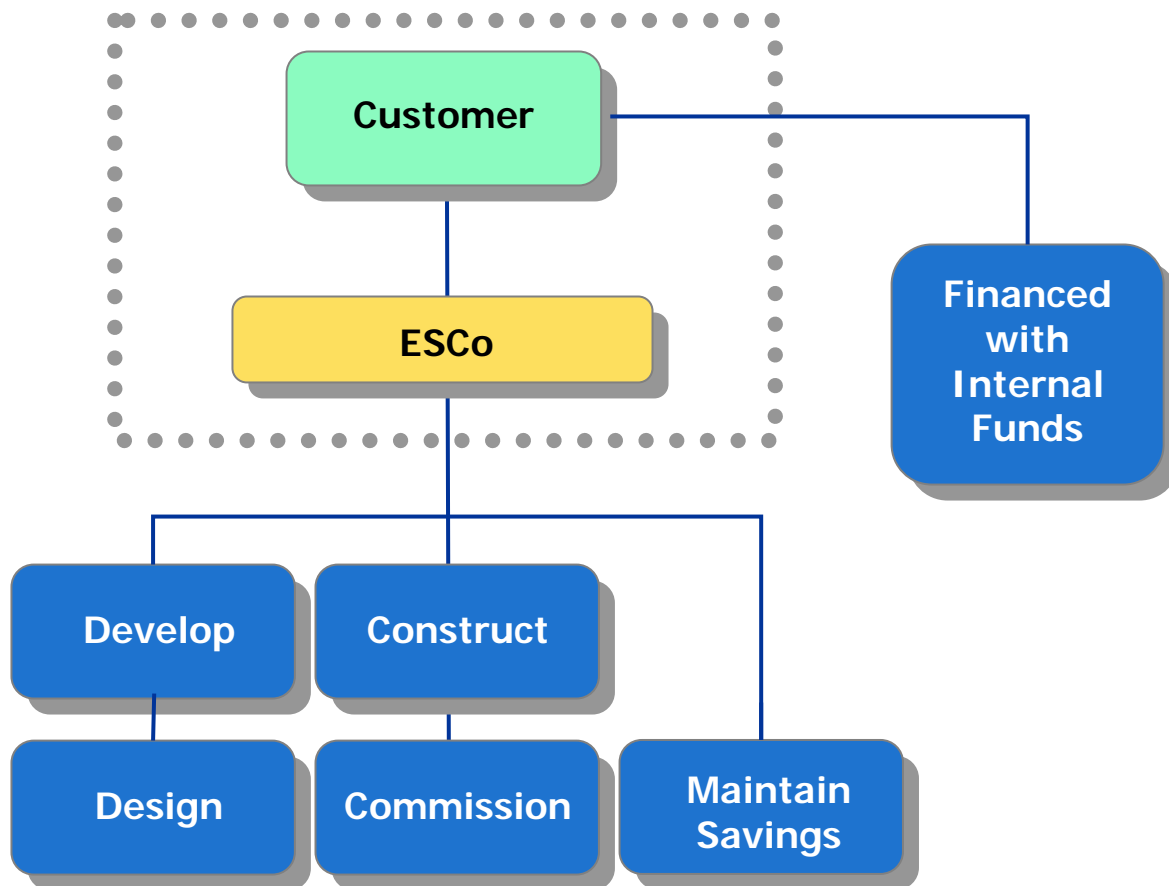
## ***Several Ways to Finance the Project***

- A. Customer procures Tax Exempt Lease from financing company.
- B. ESCo arranges Tax Exempt Lease from financing company on behalf of customer.
- C. ESCo private-labels a financing company's Tax Exempt Lease.
- D. ESCo finances the project directly. Customer repays ESCo.
- E. ESCo invests in the project and receives a share of the savings.



# Performance Contract using Operating Funds

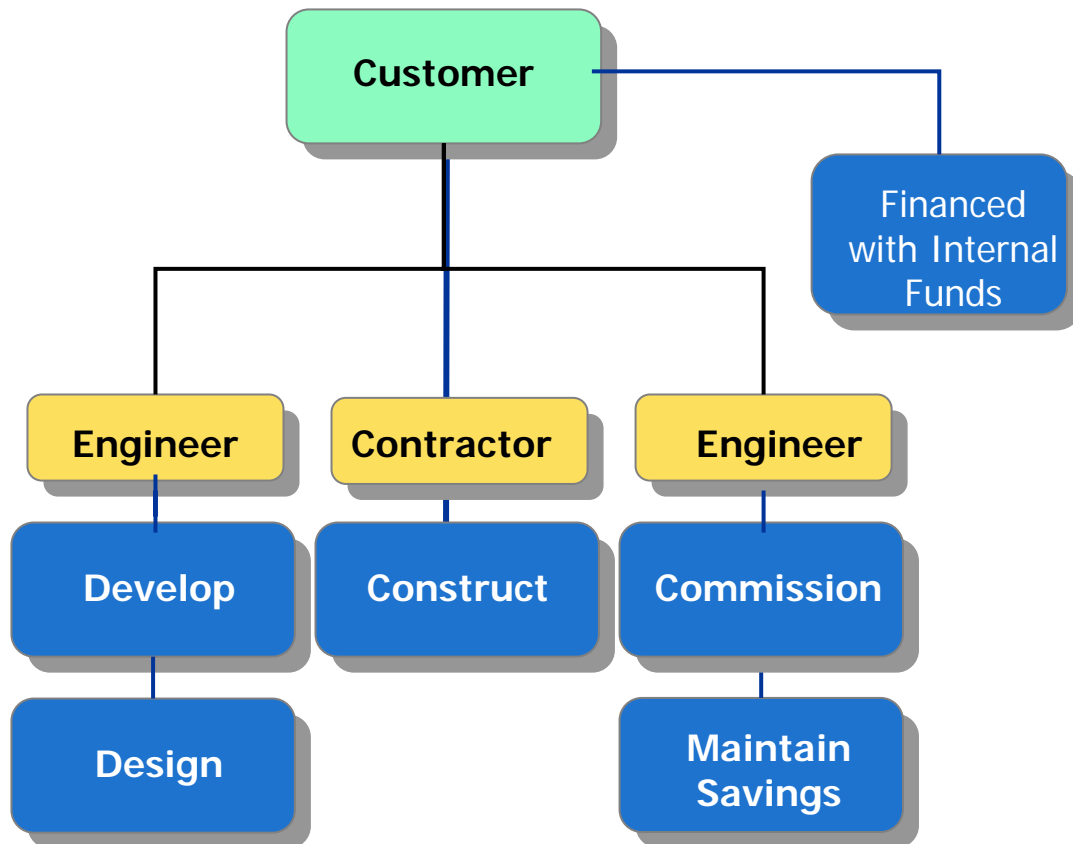
- *Prepare RFQ or RFP*
- *Gather utility bills*
- *Escort building surveys*
- *Review proposals*
- *Award to ESCo*
- *Review detailed audit*
- *Get internal funding committed*
- *Negotiate contract*
- *Monitor construction*
- *Monitor savings reports*





# Unbundled Performance Contract

- *Hire Consulting Engineer to develop energy conservation measures and scope of work.*
- *Request proposals*
- *Award to ESCo/ Contractor*
- *Get internal funding committed*
- *Monitor construction*
- *Hire Commissioning Engineer*
- *Monitor savings*





# Comparison

	Traditional Design-Bid-Build	Standard Performance Contract	Performance Contract using Operating Funds	Unbundled Performance Contract
Guaranteed Performance	✗	✓	✓	?
Single Source Responsibility	✗	✓	✓	✗
Emphasis on Life-cycle Costs	✗	✓	✓	✓
Emphasis on "First Cost"	✓	--	--	--
Negative Impact on Budget	✓	--	✓	--
Financial Risks Minimized	✗	✓	✓	✓



# Standard Performance Contract (tax exempt lease)

## PRO's

- ✧ Little financial risk
- ✧ Low interest rate
- ✧ Quick implementation
- ✧ Leverage energy savings
- ✧ Added expert involvement and support
- ✧ Comprehensive approach to infrastructure investments
- ✧ ESCO performance guarantees
- ✧ Design/Build approach

## CON's

- ✧ Non-traditional implementation strategy.
- ✧ ESCO has lead role in specifying, selecting, and installing equipment.



# Standard Performance Contract (shared savings)

## PRO's

- ✧ Little financial risk.
- ✧ Quick implementation.
- ✧ No debt on balance sheet.
- ✧ Added expert involvement and support.
- ✧ Comprehensive approach to infrastructure investments.
- ✧ Interim financing option.
- ✧ Design/Build approach.

## CON's

- ✧ Non-traditional implementation and financing strategy.
- ✧ Higher interest rates.
- ✧ Less money available for project implementation.
- ✧ ESCO typically takes a share of any excess savings.
- ✧ ESCO requires a role in specifying, installing, and operating the equipment.
- ✧ Reliance on ESCO performance.



# Performance Contract using Operating Funds

## PRO's

- ✧ Lowest cost if excess funds are available.
- ✧ Familiar funding strategy.
- ✧ Little financial risk.
- ✧ Quick implementation.
- ✧ ESCo expert support.
- ✧ Comprehensive approach to infrastructure investments.
- ✧ ESCO performance guarantees.
- ✧ Design/Build approach.

## CON's

- ✧ Lost opportunity cost if not immediately budgeted and implemented.
- ✧ Non-traditional implementation strategy.
- ✧ Energy projects competing for funds often get pushed aside by more visible projects.
- ✧ Might not be seen as "leveraging energy savings".



# Unbundled Performance Contract

## PRO's

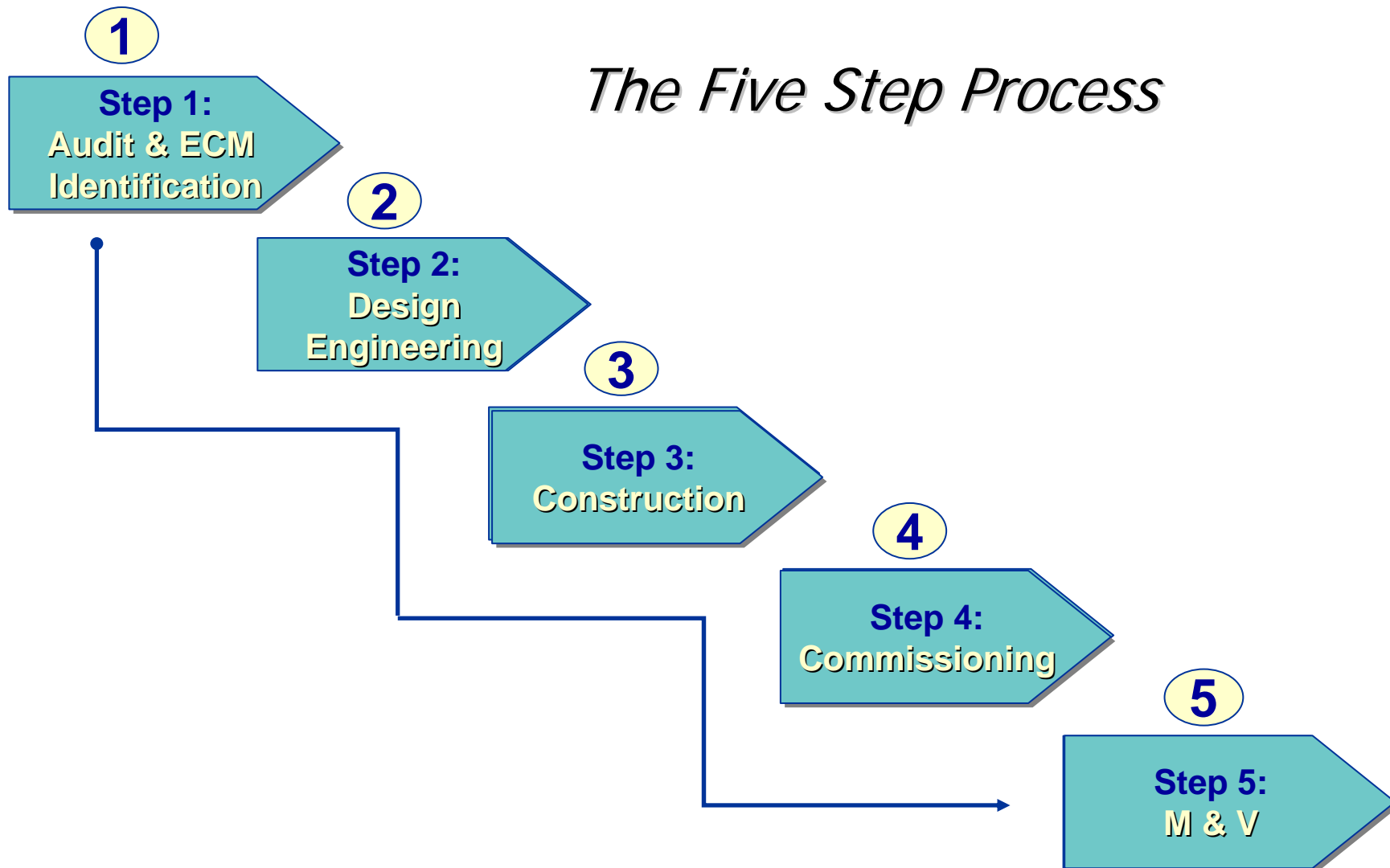
- ✧ Traditional implementation and funding process.
- ✧ Added expert involvement and support.
- ✧ Comprehensive approach to infrastructure investments.
- ✧ ESCO performance guarantees possible.

## CON's

- ✧ Lost opportunity cost if not immediately budgeted and implemented.
- ✧ Feasibility studies can gather dust on the shelf.
- ✧ Energy projects competing for funds often get pushed aside by more visible projects.
- ✧ Not leveraging energy savings.
- ✧ Benefits of single source responsibility lost.

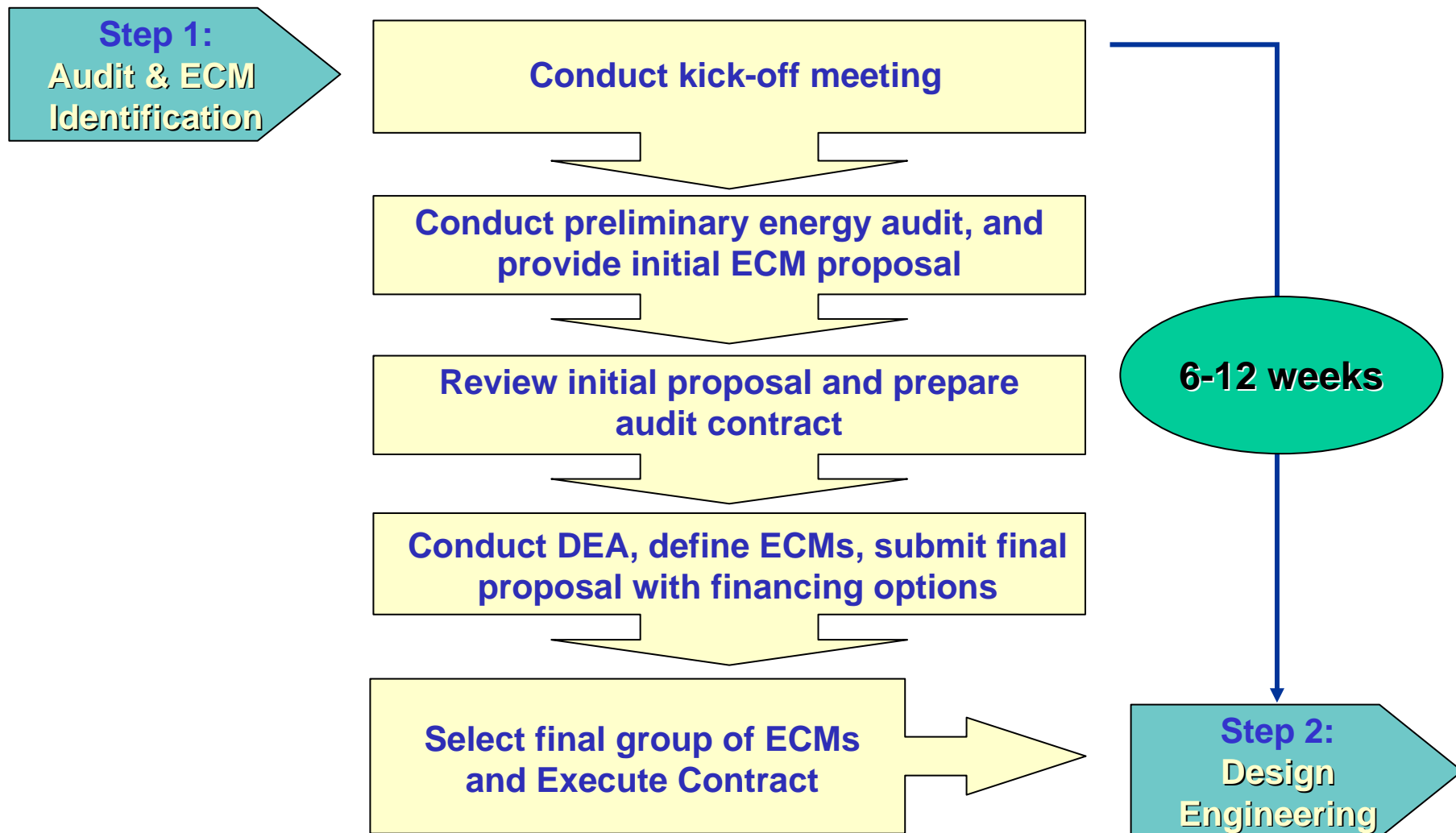


# Project Implementation



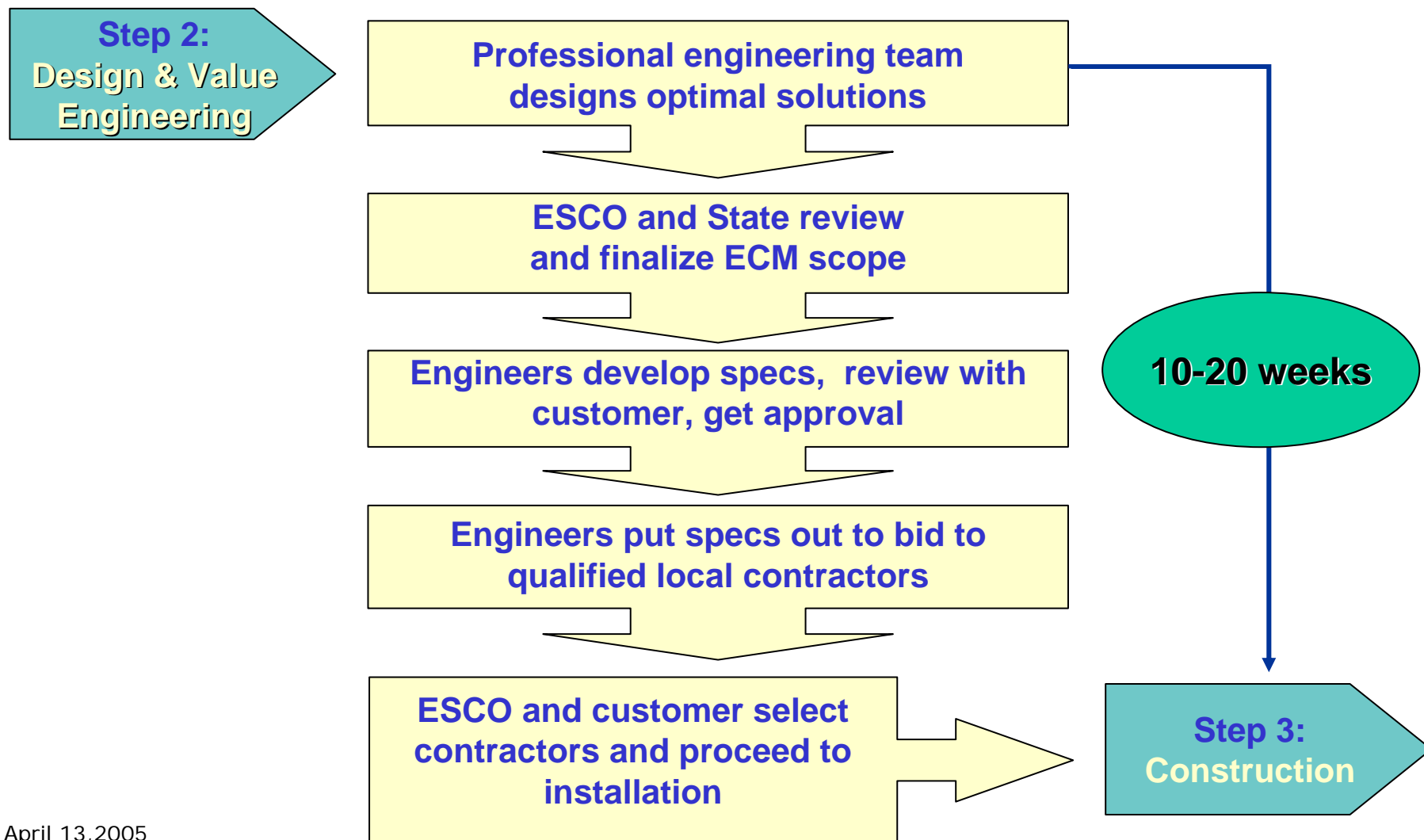


## Step 1



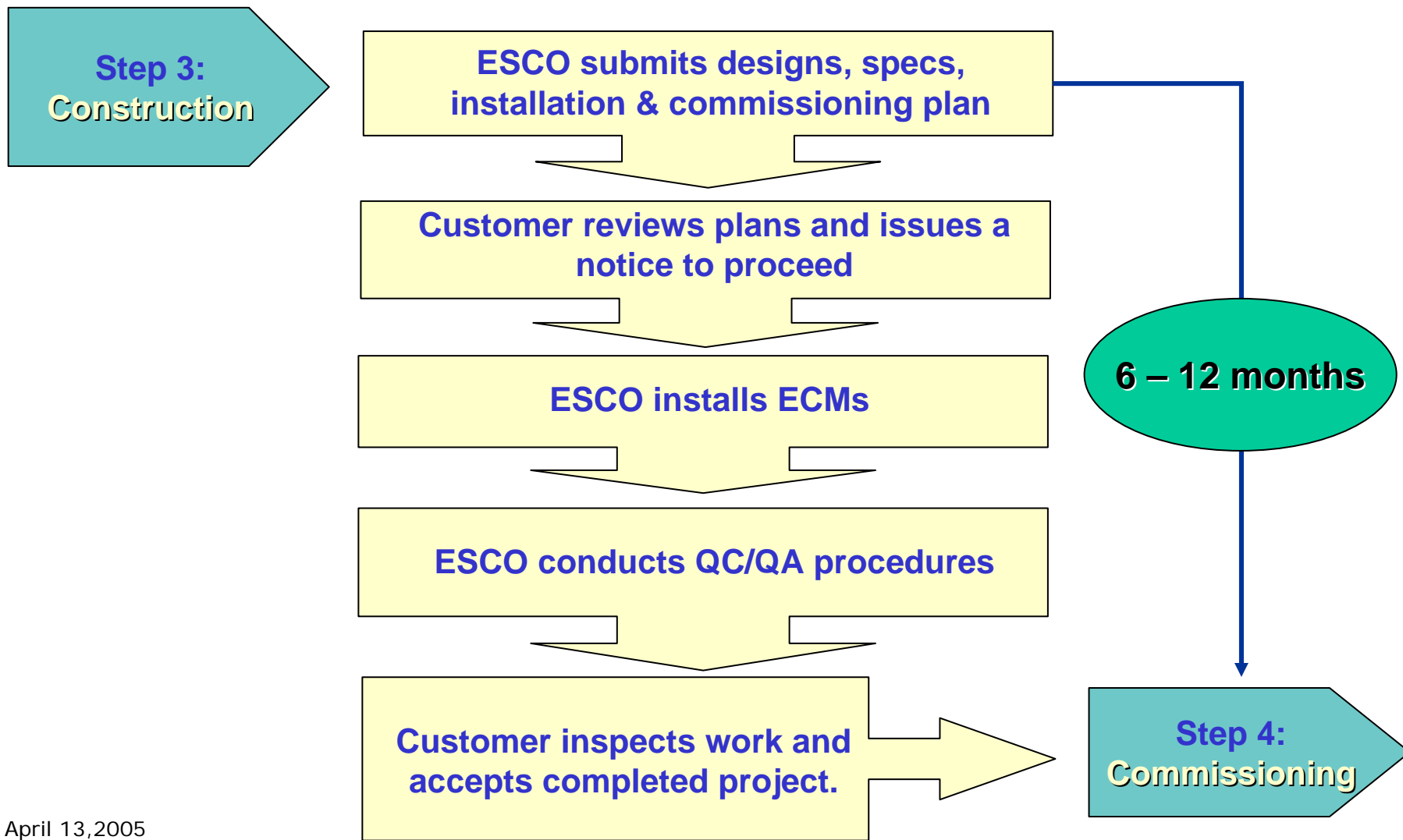


## Step 2



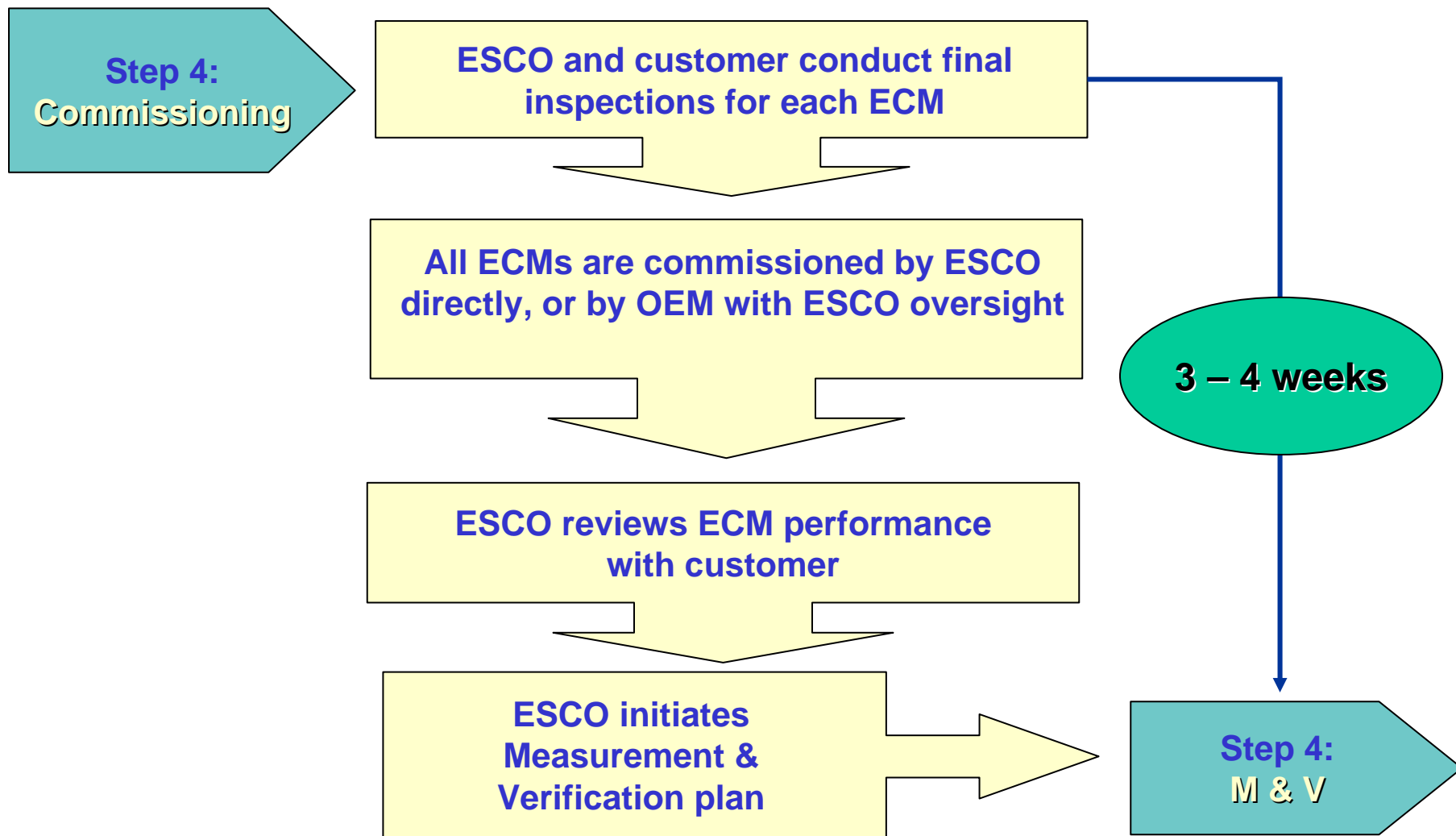


## Step 3



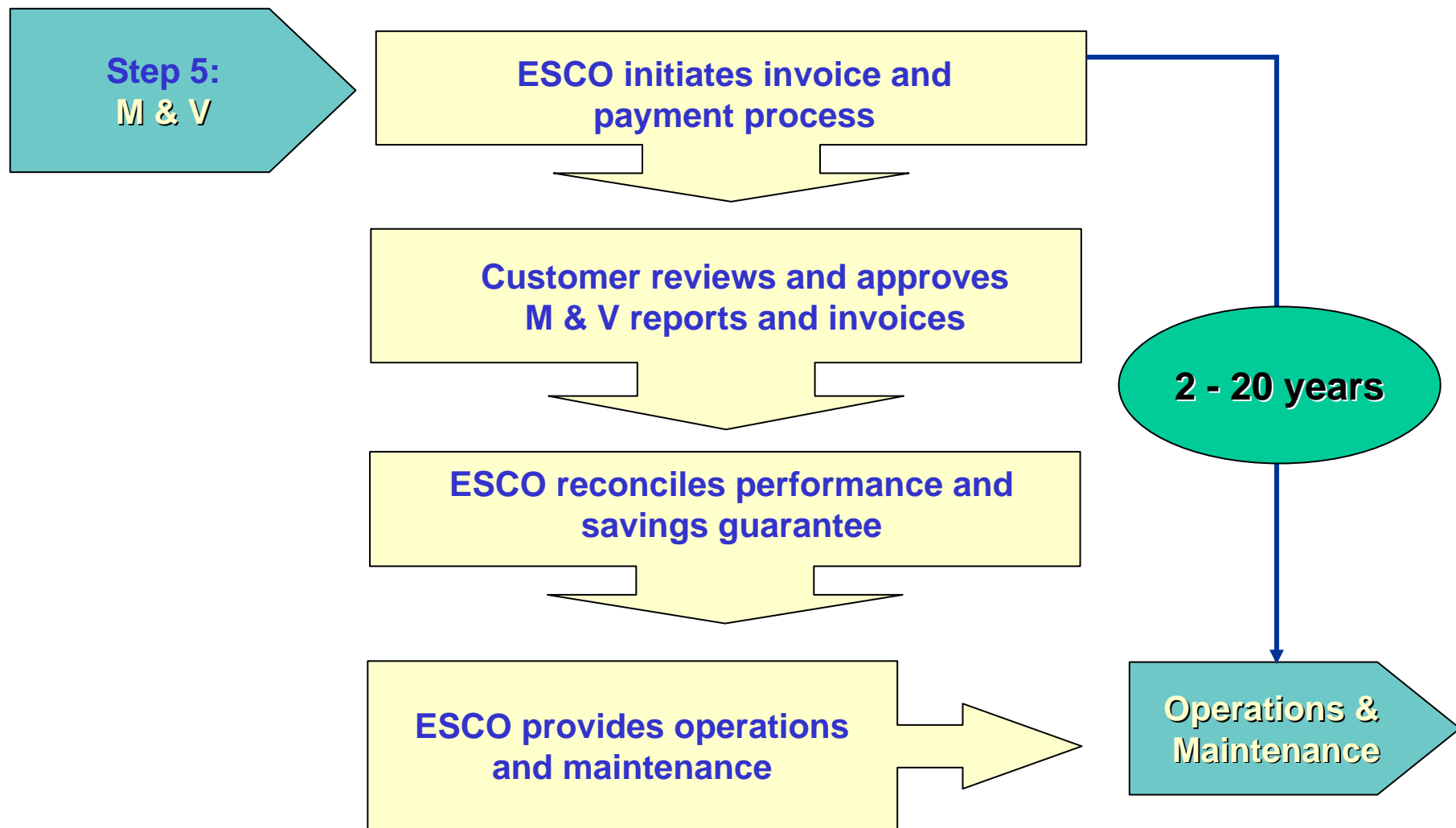


## Step 4





## Step 5





## Past experience implementing ESPC projects offers three important lessons:



Start with a clear plan and carry it out as consistently and expeditiously as possible.

**A day of delay is a day of lost energy savings, and poor planning is the most frequent cause of indecision and delay.**



Get Buy-In at all organizational levels, especially at the top.  
**Vesting responsibility and authority at the highest levels possible will help overcome any other level obstacles.**



Don't "incrementalize"

**Big projects cost as much to administer as small ones and can deliver significant economies of scale in purchase of materials and mobilization of labor.**



# Summary and Higher Education Example

- ❖ Comprehensive performance-based energy projects can incorporate significant enhancements such as renewable energy and cogeneration
- ❖ Don't be afraid to utilize a combination of funding sources





# Mount Wachusett Community College Financial Investment

✧ New Lighting	\$ 412,000
✧ VFDs	\$ 59,000
✧ Water Conservation	\$ 42,000
✧ DHW Conversion	\$ 50,000
✧ Low Emission Biomass Plant	\$3,086,000
✧ Infrastructure Improvements	<u>\$ 500,000</u>
✧ <b>Total</b>	<b>\$4,149,000</b>



# The Funding Sources

<b>Total Project Cost:</b>	<b>\$4,149,000</b>
DOE Grant:	(\$1,000,000)
MRET Grant:	(\$ 750,000)
Electric Utility Rebates:	(\$ 174,000)
Operating Funds:	(\$ 345,000)
<hr/>	
<b>Additional Funds Needed:</b>	<b>\$1,880,000</b>



\$1,880,000



One More Challenge!



# Energy Savings Performance Contract

## Net Financial Impact to MWCC

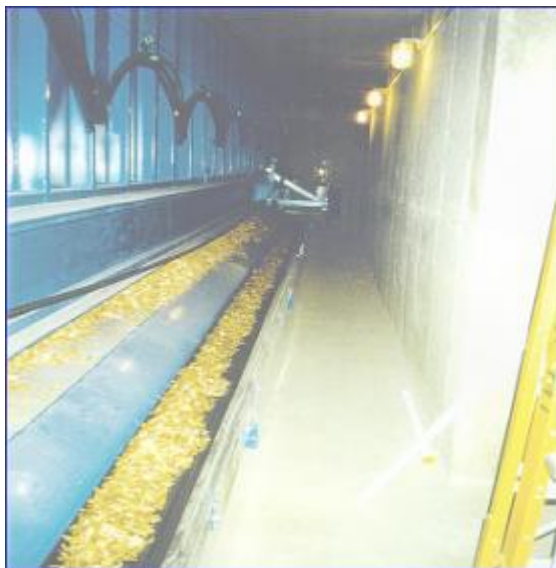
- ✧ Guaranteed Energy Savings: **\$272,826**
- ✧ TELP Loan Annual Payment: **\$264,306**
- ✧ Annual Positive Cash Flow: **\$ 8,520**

NORESCO provided a fixed price for turnkey design/build package with a savings guarantee



U.S. Department of Energy  
Energy Efficiency and Renewable Energy

# MWCC Biomass Boiler Plant



April 13, 2005



# Questions?

Alan Davis, Manager  
NORESCO  
(508) 614-1055  
(888) NORESKO  
[adavis@noresco.com](mailto:adavis@noresco.com)